THE

VETERINARY JOURNAL

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MAY, 1920.

LIEUTENANT-COLONEL G. R. GRIFFITH, D.S.O.

Retired Royal Army Veterinary Corps.

THE recent death of Lieutenant-Colonel G. R. Griffith, D.S.O., removes one of the best known characters of the old Egyptian Army, whose first chief, Field-Marshal Sir Evelyn Wood, also died recently.

"Friendly," as Colonel Griffith was affectionately called by the large number of British officers who served in the Egyptian Army (the name is a reminiscence of the Friendly Arabs at Suakin), was born in 1857, and joined the Army Veterinary Department in 1880. He first went to Egypt with the cavalry in 1882, and took part in the Tel-el-Kebir campaign under Lord Wolseley, accompanying the 7th Dragoon Guards in the successful dash to Cairo immediately after that decisive battle. The surprise effected by the mounted troops was complete. The Citadel was occupied and Cairo fell without resistance. In the reorganisation of the native troops which followed, Colonel Griffith played no inconspicuous part, and he followed the fortunes and participated in the success of the new army in all its campaigns under Sir Evelyn Wood, Lord Grenfell, and finally under Lord Kitchener and Sir Reginald Wingate, in its victorious advances on Khartum and eventual reconquest and settlement of the Sudan.

A very modest, retiring man, with a great sense of humour and possessing a fund of entertaining stories, "Friendly" was a general favourite with the British and Egyptian officers and men with whom he came in contact in peace and in war. A keen observer, an active worker, a capable man, he carried out his duties in an unostentatious manner but most effectively. No great linguist, his personality was so great that he was successful when many others with better knowledge of the language were unable to obtain the whole-hearted co-operation of his subordinates that he himself never failed to inspire. He became a landmark in Egypt and the Sudan, and served his country well and truly in the adverse conditions of climate and shortage of money which beset the operations of the Egyptian Army.

A remarkable judge of a camel, he was able to detect the special points of these troublesome animals to the great advantage of the troops who had in the countries of their campaigns to depend largely on this means of transport for their supplies and also for their more mobile units. The remounts for the cavalry and artillery purchased in Syria were selected under his trained eye for many years. With the establishment of settled government in the Sudan, Colonel Griffith took charge of the very important measures which the constant outbreaks of cattle plague rendered essential. This disease constituted a special danger to Egypt, where irrigation depended to a great extent on the employment of cattle with the water wheels. The commencement of the export of cattle to Egypt for food purposes was only possible under the careful organisation instituted by Colonel Griffith. The trade has developed considerably since he left the Sudan in 1907.

In 1909 he married Miss Alice Maud Redpath, daughter of the late Rev. G. D. Redpath, of Harbledown, Canterbury, and Montreal, Canada, who survives him. His long service in trying climates affected his health and the last few years of his life he suffered considerably from his devotion to the interests of the countries in which he spent 23 years. He was much disappointed that owing to his health he was unable to take an active part as a soldier in the recent war. His work was well recognised by the late Lord Kitchener, who not only tried to obtain his services for the Transvaal War, but invited him to go to India when he himself was appointed Commander-in-Chief after South Africa.

He was awarded the 1882 Egyptian Medal with three Clasps and bronze Star with Clasp for Tokar; the Egyptian Medal with no fewer than ten Clasps, and the British Medal for the Sudan. He was three times mentioned in despatches, and for his services he

received the D.S.O. in 1896, 4th Clasp Osmanieh in 1891, and 3rd Class Medjidieh in 1898, raised to the 2nd Class in 1907. He was a Pasha of Egypt with the rank of Lewa in the Egyptian Army when he retired.

The funeral took place on Thursday, March 25th, at Hartley Wintney. Many of his old friends unable to attend sent letters of sympathy on the sad death of an old comrade in arms. Among those who were present, in addition to the immediate family and household, were Major-General L. J. Blenkinsop, C.B., D.S.O., Director General Veterinary Service, from the War Office ; Major-General Butler, C.B., C.M.G., Deputy Director Veterinary Service, Aldershot ; Col. E. Thornton Taylor, Lieut.-Col. Phipps, Major Dixon, Mr. Andrew Taylor (vice-chairman of the L.C.C.), Mr. Montague Scott, Mr. A. Chester Hillman, Dr. Balgarnie, and several officers of the Royal Veterinary Corps, from Aldershot. On the Union Jack covering the coffin were several beautiful wreaths from the family and servants and a few close personal friends, one being sent by " officers past and present of the Egyptian Army to a gallant comrade."

Editorials.

VETERINARY SURGEONS ACT (1881) AMENDMENT BILL.

THE Amendment Bill has now passed Standing Committee and is to be reported to the House on June 11th. We understand the Third Reading is to be taken on June 18th. There appears to be still some opposition to the Bill amongst farmers and stockowners, to judge from the remarks in our agricultural contemporaries. The erroneous assumption still exists that the Bill will prevent the employment of shepherds or other farm servants from performing small operations on animals. An inspection of the Bill ought to suffice to dispel such an hallucination, but there is in addition the considered opinion of the eminent Law Lord quoted in our last issue and of the late Dean of the Faculty of Advocates who holds that there is nothing in the Act of 1881 or in the Bill " which can be held to forbid or to penalise the employment of unqualified persons for performing operations on animals or for treating or prescribing for diseased animals."

The opposition of the unqualified and unregistered persons is still unabated. They allege that the Council seeks to eliminate unregistered practice and quote a draft Bill of 1907 in which a clause appeared to forbid practice for fee or reward by unqualified persons. But that was merely the first rough draft of a measure which never saw the

light. The first Bill introduced into Parliament contained no such proposals, and was substantially identical with the present Bill. We understand the Council of the College has agreed to withdraw the newly-worded Bye-law regarding covering and the employment of unqualified assistants, and to substitute in its place the old Bye-law which was in force from 1896 to last year.

In the interests of the public it is necessary that the Bill should be passed without any obstructive or embarassing amendments. Members should lose no opportunity of influencing the M.P.'s for their districts to secure their support in the further passage of the Bill through Parliament. The profession must have the public recognition which its work demands. To this end the standard of veterinary education and professional ethics must be maintained as high as possible, and the governing body of the profession must be placed upon a satisfactory financial basis. The passing of the Bill will be the beginning of a new era in which at last the profession will come into its own.

THE CHOICE OF A VERMIFUGE FOR ROUND WORMS.

THE Veterinary Profession in all countries is indebted to the painstaking observations of our American Colleague, Mr. Maurice C. Hall, upon the actions and dosage of oil of chenopodium in the treatment of round worms, as in this drug we have at last found a remedy which is a specific against these pests.

It is by no means a new drug, but it is only of late years that its use has been prominently advocated, and that the most effectual methods of using it have been worked out. Although not quite non-poisonous, it can be used in reasonable doses quite fearlessly, and, compared with santonine, it has many advantages, both in regard to cost and uniformity of action. We draw our readers' attention to the abstract on another page of this issue.

EPIZOOTIC ABORTION.

KNOWLEDGE concerning the subject of Epizootic Abortion in Cattle cannot be too widely spread at the present time, for there is no doubt that, next to Tuberculosis, it is the most serious problem the dairy farmer of the present day has to face.

In addition to the regulations and bye-laws framed by the Board of Agriculture it is necessary that local County Councils shall urgently take the matter in hand and apply the regulations stringently in accordance with the local conditions, etc.

In matters of this kind, the framing, and even the carrying out, of the local bye-laws depends in a great measure upon the Veterinary Adviser, who if he is a strong man and well acquainted with his subject is "a power in the land." As an instance of this we publish in another column some remarks recently issued in pamphlet form by the County Council of Lanark. Originally written by the Veterinary Inspector, Mr. Hugh Begg, F.R.C.V.S., for the benefit of the Chairman and Members of the Executive Committee of the Local Authority, this pamphlet contains much sound, practical advice of the greatest value to farmers and dairymen, and much food for thought for every practical veterinarian. For this reason we give the pamphlet *in extenso*, and shall be glad to receive the opinions of our readers as to their experience of the methods taken within their own observation for the control and eradication of this troublesome disease.

INDIAN ARMY VETERINARY SERVICE.

THE Secretary of State for India announces the introduction of the following scale of grade pay for officers of the Army Veterinary Service in India, with effect from July 1, 1919 :—

	Rs. per mensem.
Lieutenant	550
Captain, on promotion	650
Captain, after two years' service as such ..	700
Major, on promotion	950
Major, after five years as such	1,050
Lieutenant-Colonel	1,300
Colonel	1,450

Staff pay as laid down in Army Regulations, India, is also admissible. Army of Occupation bonus is not admissible concurrently with these rates, but in cases where the old rates with the bonus are more favourable, they may be retained until the general abolition of the bonus or until promotion, whichever is earlier.

Children's allowance, when admissible under Indian regulations, may be drawn with the new rates of pay up to December 31, 1919. These rates, which will not carry exchange compensation allowance, are provisional, and subject to revision when permanent rates of pay are fixed for other military services in India.

The above rates of pay are an advantage over the old ones for the younger ranks and compare favourably for them with other branches of the service. Owing, however, to the fact that promotion in the Veterinary Service is not so rapid as in the Medical and other branches, the higher ranks are not so well served, and this is a matter which should be reconsidered and readjusted.

Original Communications.

HYDRO-THERAPY IN THE TREATMENT OF COLICS.

By MAJOR C. G. SAUNDERS, D.S.O., B.V.Sc., M.R.C.V.S.
(formerly Professor of Surgery and Anatomy, Ontario Veterinary College), Worthing, Sussex.

ALTHOUGH the term Colic, from a purely scientific standpoint, is open to objection, yet from a practical point of view it has a place in pathological nomenclature, and is a very convenient word to use in connection with those diseases and conditions of the organs situated in the abdominal cavity which are associated with pain as a prominent symptom. In the present article colic is applied to the digestive tract alone, to the exclusion of renal, hepatic, vesical colic, etc, and is further confined to those conditions resulting from the imperfect digestion of the food and faulty or suspended elimination of the waste products of digestion, for it is in these conditions that hydro-therapy plays such an important part in reducing the annual death roll from colic. Hydro-therapy, as the name implies, is the treatment of disease by water, and here again indulgence, as regards strict definition, is asked for, because in practising hydro-therapy for the treatment of colics, it has been found advantageous to administer medicines, either dissolved or suspended in the water, so that to the captious critic the term hydro-therapy might be questioned. In advocating the practice of hydro-therapy no claim is made that the long sought for specific has been found, or that it should supersede the ordinary methods of treatment at present in vogue, but it is claimed that it is a most valuable, in fact, to some of us, an indispensable, addition to the means up to now adopted in the treatment of gastric tympany, gastric impaction, intestinal tympany and impactions or in any type of colic due to undigested food. As the stomach tube is the indispensable means of applying gastro-intestinal lavage or hydro-therapy, a short description of the tube itself, and the method of using it, may not be out of place. The material of which the stomach tube is made is of great importance; it must be manufactured of pure rubber, glass moulded, and with no canvass lining. Tubes lined with canvass are not sufficiently pliable and curl themselves into awkward kinks that always hinder, and sometimes altogether prevent, the insertion of the tube. Two styles of tube are in vogue, the single tube and the double or return flow tube; both have their advocates and both are useful, but after many trials it has been found that in practice the single tube will accomplish all that the double one will do, and has the distinct advantage of being both cheaper and more portable. The chief advantage of the single tube is, how-

ever, the fact that it can be easily passed into the stomach via the naso-pharyngeal route, whereas the double tube can only be passed by the mouth, and this means either the use of a mouth speculum or gag, or the strapping of the jaws together to prevent injury to the tube. These two objections alone are sufficient to warrant the exclusion of the double tube, as in the first place the patient resents the passage through the mouth and the restraint of the gag, especially if the procedure is prolonged, as it often is in bad cases, and in the second it is much more difficult to introduce the tube per orem than it is per nasem. It is claimed by the supporters of the double tube that the advantages obtained by being able to keep up a continuous circulation of water through the stomach and tube by means of the pump counterbalance the other defects, but as a matter of fact the pump only plays the minor part of introducing the water, it is the intra abdominal pressure that causes the outflow, so that except in theory their arguments will not stand. The tube itself is, as above stated, made of pure rubber, about ten feet long and one inch in diameter. The lumen should be as large as possible, consistent with the rigidity of the walls which must not collapse under the oesophageal pressure. One end of the tube is smoothly bevelled, while to the other is fixed an attachment for the enema pump. About eighteen inches from the bevelled end the tube is marked with a black ring, and is similarly marked at six feet. The marks respectively indicate that the tube, when introduced, is in the vicinity of the pharynx and stomach. A stylet should be provided with the tube, as after much use the tube becomes very pliable and has a tendency to find its way into the trachea instead of the oesophagus, to the great annoyance of the operator, but luckily with little or no harm to the patient, who, contrary to expectation, only quite exceptionally coughs when such an occurrence takes place. When the stylet is used care should be taken to thoroughly lubricate it before inserting into the tube, or great difficulty will be experienced in withdrawing it. Before going on to describe the actual passing of the tubes, a brief ***resumé*** of the anatomy and physiology of the regions invaded will elucidate some of the prevailing mystery in regard to stomach lavage, and make the technique more intelligible; in fact, it is only a working knowledge of these that makes the passage of the tube via the nostril a possibility. The nasal chambers are divided into three meati by the turbinated bones, the anterior atria of the middle and inferior meati being only accessible from the nostrils. It is here that the first mistake in attempting to pass the tube is usually made, it being inserted into the middle meatus. If we trace the middle meatus backwards, it is found to terminate against the ethmoid and does not lead into the

pharynx, consequently the tube stops at the ethmoid, and does not pass into the pharynx as desired. On tracing the inferior meatus or floor of the nasal chamber backwards towards the pharynx, it is found to terminate in a considerable foramen which, leading directly into the pharynx, allows the tube to pass without any resistance. The superior meatus may be disregarded as there is no possibility of entering it at the nostrils. As we know, swallowing is a mixture of voluntary and involuntary action, the first being the working of the food bolus over the base of the tongue and into the pharynx; once there, voluntary control ceases and the act is completed by involuntary action. Concisely the nervous mechanism is as follows: The afferent impulses set in motion by the presence of food (in our case the end of the tube), proceed via the fifth and superior pharyngeal nerves, to the swallowing centre in the medulla, from which efferent impulses are given off to the pharyngeal muscles, larynx, and oesophagus by way of the pharyngeal plexus, glosso pharyngela, hypoglossal and recurrent laryngeal nerves. The net result of this nervous phenomena being the closure of the glottis, constriction of the larynx, and from our point of view most important than all, the advancement of the pharynx and oesophageal infundibulum, which seize the food or tube, as the case may be. Waves of peristalsis now run down the oesophagus, carrying the food or tube into the stomach. It will thus be apparent that in passing the tube force is not required, physiological processes being impressed into service, in fact, force at any stage of the operation is most strongly contra indicated, and being not only likely to cause injury to the turbinated bones (or ethmoid, should an error be made at the start), but also to interfere with the normal physiological functions.

Technique. Position of the Patient.—This is of some importance to the easy passage of the tube and the patient's safety. The animal should be backed into a corner, and if violent, given a narcotic such as a hypodermic of morphia; this latter, however, is only occasionally necessary. The head should be well extended and in a straight line with the neck. The use of the twitch only complicates matters and should be avoided if at all possible.

Position of the Operator.—The tube can be equally well passed by either nostril, the choice of which lies with the operator. It depends largely in the ability to use either hand with equal facility. The left nostril is usually selected, and that being the case, the operator stands at the near side of the head, slightly in advance of the nose, having hung the tube around the shoulders and having the bevelled end in the left hand. To commence with, the first foot or eighteen inches of the tube should be well lubricated with linseed tea decoction

of slippery elm bark, or even with the patient's own saliva. Vaseline may be used, but it has a detrimental effect on the rubber. The remainder of the tube is lubricated as it is fed in foot by foot, otherwise if done at one time it is hard to handle and also likely to pick up bits of straw, etc. The head being steadied and extended the end of the tube is introduced into the left nostril, special care being taken to keep the end depressed by the fingers of the right hand on to the floor of the nostril and under the end of the terminated bone. Safely in the inferior meatus, the tube is then steadily pushed in until the first mark appears, which indicates that the end is in or near the pharynx. It should be noted that the tube should glide into the pharynx without the slightest opposition and that no force is necessary. The entrance of the tube into the pharynx is signalised by the patient swallowing or perhaps coughing and the tube is withdrawn about two or three inches, the left hand grasping it about four inches from the nostril. The fingers of the right hand are now lightly applied to the exterior of the pharynx and the tube advanced slowly until the commencement of a swallow is sensed by the right hand, when the tube is pushed quickly, but gently, forward. If successful, swallow succeeds swallow, and the tube is fed in until the second mark is reached, when some slight resistance is felt, which after a second or so of steady but gentle pressure is overcome, and the tube enters the stomach, which event is signalised by a gush of gas, and if the ear be applied to the end of the tube the characteristic gurgling stomach sounds can be heard. In some cases, either owing to the use of too pliable a tube, or the failure of the pharynx to grasp it, the end, instead of entering the pharynx, descends into the trachea, in which case the characteristic " tug " of the pharynx is not felt and the tube passes with absolutely no feeling of resistance ; at the same time if the ear be applied to the end of the tube, blowing sounds synchronous with the respirations are heard and the expired air impinges on the face. No reliance can be placed on coughing as to whether the tube is in the trachea or pharynx ; in fact, coughing is more often provoked when the tube enters the latter than when the former is invaded. A word of caution is necessary when withdrawing the tube ; if pulled out quick and carelessly the end is liable to fly up as it leaves the nostril and fracture the turbinated bone, the result being a somewhat profuse if harmless hemorrhage. This is avoided by pulling the tube upwards as well as outwards and by keeping the end depressed with the fingers of the right hand until it is clear of the nostril. Hemorrhage may also be occasioned by fracture of the ethmoid by improper insertion, or by pushing the tube in too fast so that it bends upwards in the nasal chamber and fractures the tur-

binated bone; the remedy for the avoidance of this accident is obvious.

CONDITIONS IN WHICH THE USE OF THE STOMACH TUBE FOR THE APPLICATION OF HYDRO-THERAPY IS ESPECIALLY INDICATED.

Acute Gastric Tympany.—It is in this parlous condition of the horse's stomach, where denied the relief of vomition by the arrangement of the muscle fibres and mucous membrane at the cardia and with the duodenal lock preventing any egress from the pyloric opening, that rupture of the viscus is almost certain unless speedy relief can be afforded. The death roll is a good indication of the efficacy of medicinal treatment alone, and it is here that the stomach tube stands alone for efficiency.

Treatment.—Several gallons of warm water, the tube and pump are all that are really required. The tube is passed as above described, and with the gush of gas and liquid chyme relief is almost instantaneously afforded; in any case the impending rupture of the stomach is avoided. Sometimes the tube will block up with particles of food, in which case it is cleared by injecting a quart or so of warm water and the flow of the stomach contents is re-established. About two gallons of warm water are now pumped into the stomach, the pump disconnected, the end of the tube depressed and the water siphoned off; this is repeated until the water either comes away quite clear or does not come back at all; in the latter case it indicates that the duodenal lock has been overcome and the water passed on to the intestines. One or two gallons of water to which has been added some antizymotic is now pumped in and the tube withdrawn. A copious rectal injection completes the operation, the whole procedure having taken about half an hour.

Intestinal Tympany.—Stomach lavage or hydro-therapy, is always indicated in these conditions and, except in the case of great emergency where the trocar is urgently required, should proceed any attack on the bowel itself, either by way of rectal injections or the administration of medicines. If this practice is followed out, it will be found, in the great majority of cases, that further treatment is needless and much time and medicine will be saved. Again, the constant use of the stomach tube in these cases has clearly demonstrated the fact that sooner or later, during the course of an attack, the stomach becomes involved owing to antiperistalsis.

Treatment.—The stomach is first of all washed out by means of the stomach tube and pump and then from three to four gallons of warm medicated water are injected and the tube withdrawn. A copious enema or so usually starts the passage of flatus and relieves the tympany. In rare cases the treatment needs to be repeated in

two or three hours, and this is mostly found in those cases that have received hypodermics of arecoline, etc., *before* the stomach lavage. The advantage of the tube in these cases is that any medicines it is desired to exhibit, after the lavage, can be easily administered via the tube, and this especially applies to bulky drenches such as oil or irritant solutions of chloral hydrate, ammonia, etc.

Impactions of the Stomach and Intestines.—These are grouped together as the treatment is essentially the same, though varying in the time of application and the attainment of the desired results. In these cases the emptying of the stomach is a much more prolonged procedure and may require a couple or three hours persistent work, as it is only by repeated injections and siphonings that the solid gastric contents can be liquified and removed, but the results more than warrant the time and trouble expended. In the case of intestinal impactions from three to four gallons of water are introduced into the stomach twice daily, having six ounces of hyposulphite of soda dissolved in them, twelve ounces being given daily. Frequent and copious rectal enemata are given daily and peristalsis is excited by repeated small doses of strychnine given hypodermically. Drastic purgatives of any description should be avoided, but when peristalsis is established a small dose of esserine or arecoline is indicated.

Spasmodic colic does not seem to call for the use of the stomach tube, but at the same time it is a matter of experience that its use in that affection produces excellent results, and the animal not being nauseated or put on the sick list by the administration of aloes or oil is ready to go to work the next day without fear of untoward consequences. Once the knack of passing the tube is learnt and advantages of gastric lavage recognised more generally, I venture to say that hydro-therapy in the treatment of colics will play a far greater part in the future than in the past—that is, if there are going to be any horses left to treat.

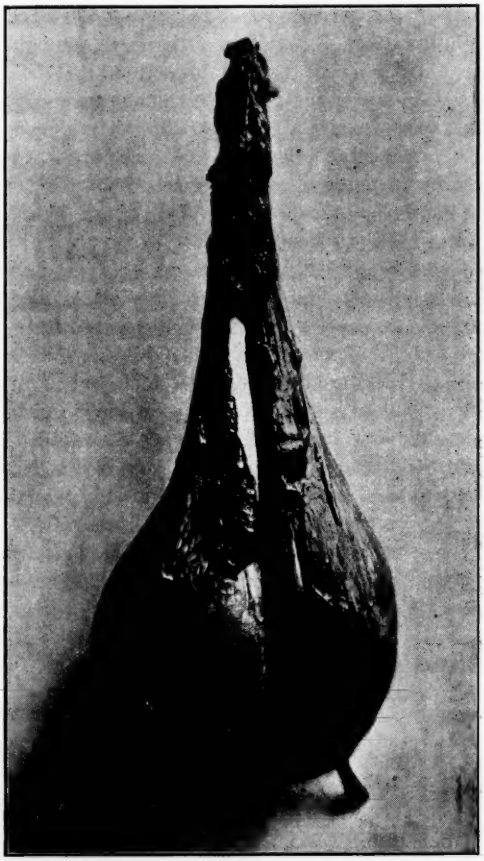
OBSERVATIONS AT THE ABATTOIR.

By E. MORGAN, M.R.C.V.S., D.V.H.
Puerto Cabello.

"The time has come, the Walrus said,
To talk of many things.
Of shoes and ships and sealing-wax,
Of cabbages and kings."

A FEW weeks ago, whilst examining the livers of cattle slaughtered at the Abattoir of the Packing-house, Puerto Cabello, I came upon a liver which contained two gall-bladders, which was the first one I had seen or heard of containing such. Judging by the thousands I have to examine weekly at certain months of the year, I consider

the presence of these two gall-bladders quite phenomenal. The liver trimmer who has been at the same work for a great number of years, says that this is the first time he has known it to occur. This might not be news to the minority, but on the other hand it will be so to the majority.



Twin Gall Bladder found in the Liver of a Four Year Old Venezuelan Bullock at the Puerto Cabello Abattoir.

The liver itself was normal in form as well as in health. The bladders were perhaps a shade smaller than the average sized gall-bladders. Unfortunately the knife punctured one of them before

they were weighed, so I surmise that several ounces of bile escaped this way. The total weight of the two bladders and the remaining contents was exactly one pound. With the exception of a membrane of connective tissue, there was no other connection or communication whatever between the two as far as the interlobular ducts, where there was an inter-communication of the ducts. In the illustration one can observe where I cut through the connective tissue in order that the two might appear more definite in the picture. The one on the right hand side has a small protuberance about an inch long at its base, which was of the same structure as the bladder wall.

II.

Whilst examining a mob of 500 bullocks, prior to being slaughtered, a few months ago, I noticed that two beasts possessed an extra number of ribs.* One had 14 pairs, while the other had an extra rib on the left side only. The animals being semi-wild would not allow one to approach them except at several yards' distance. I mention this in order to impress on the student how distinctly plain they can sometimes be seen. On post-mortem one was able to make a close examination. These extra ribs have their distal ends free, and can be observed in the living animal behind the thirteenth pair, where the free extremity raises the skin upwards as if the animal has a fractured rib. Should the animal be a lean one, it is still more prominent, and causes, undoubtedly, a certain amount of inconvenience to the animal, should he be packed along with others in a railway waggon. They remind one of a broken steel or rib of an umbrella ready, on the least pressure, to burst through. These supernumerary ribs are only about half the length of the longest ribs, are less curved, and are not, in some respects, unlike the first pair of ribs.

> "Alas for those who never sing,
> But die with all their music in them."

The above does not apply to an Italian friend of mine who has more than seventy years of life, and has made his fortune in dealing with horses and Panama-hats between Peru, Equador, and Venezuela. Since the advent of the automobile to South America he has retired from the horse trade and taken a cattle ranch so that he should not be idle in his old days. The other day, while staying at the same hotel as myself, I listened to him relating some of his experiences with the noble steed to a crowd of eager live stock breeders. He suddenly paused, and then asked some members of his audience whether it had ever occurred to them that the horse was almost unique in the way of expressing or uttering its so-called language or natural voice (neighing). Human beings and most animals utter it orally, or by

*This loin rib is called "Chuleta" in Venezuela,

way of the mouth. Does the horse do so? was his question. Can all the veterinary students answer my Italian friend's question? Should one or two be in doubt, or the question not quite clear, their teachers will enlighten them.

INTERESTING CASE OF "BASTARD STRANGLES."

By R. BEATTIE, M.R.C.V.S.
Crieff, Perthshire.

Subject.—Bay draught Canadian gelding, brought over with a number of others, all of which were sold by auction.

History.—Bought by a client for £84 and sent to his farm, where he was isolated for 7 days and then put to work. During that week he seemed all right, and ate well.

After yoking, he was very tired at end of half day, and refused food that evening. Next day he ate fairly well, but seemed dull and was "tucked up" in the belly. He was left in, and for a week he daily looked worse, though sometimes he ate well, and at other times only "picked" at his oats and hay.

Writer was called in at end of second week's rest, and learned the above.

Symptoms.—The horse was standing in his box, looking dull and heavy, and very much "tucked up." At first glance there seemed to be a "pleuritic line" present. Pulse was steady, 45 per minute, but rather weak. Temperature normal. No history of coughing; glands normal. Respirations were rather shallow, chest revealed nothing. Teeth were normal. Closer examination of sub-maxillary region showed presence of a healed scar, like a knife wound. Visible membranes were normal.

Diagnosis.—Doubtful; suspicion of latent strangles, as the writer had seen these horses sold and had noticed one with an unhealed strangles abcess.

Treatment.—Physic ball; bran mashes, warm, comfortable box.

Powders night and morning, each containing

P. Gentian	ʒi
P. Nux. Vom.	ʒi
P. Sod. Bicarb.	ʒii

The horse was seen two days later; the physic had acted moderately, but he was looking worse. Temperature normal; pulse 65 and weak, and seemed more tucked up. He moved stiffly and seemed in pain, dragging near hind leg. The anus was distorted, but no external swelling was present. Rectal examination was very painful and revealed the wall of a large abscess, bulging into the rectum. Pressure caused great pain. Hot enemata and fomentations over near quarter were now ordered, the latter followed by liniment.

Sod. hyposulph. was given in drinking water. It was thought inadvisable to use the knife just yet, due to position of abscess. Next day the abscess burst close in to side of anus on near side, and this was followed by a very marked improvement in the horse. The opening was enlarged, and treated by syringing in the ordinary way, and sod. hyposulph. internally. He improved daily for a week, but then went off feed again, and seemed worse than ever.

It was thought likely that another abscess was forming, but none could be found. The abscess already opened seemed to be doing very well; 2 c.c. streptocine were given hypodermically and he was tempted with "all manner of good things." At one meal he would eat well, and at another would touch nothing. Pulse crept up again, reaching 72, but temperature remained normal throughout.

Two days later he went down and had to be assisted to rise. He showed a great stiffness of *off* hind leg. Rectal examination on that side revealed nothing except slight pain on pressure. He was put in a float and admitted to hospital. Fomentations and liniment were applied over right quarter, but he only got more lame. An exploratory incision deep into middle gluteal muscle revealed nothing. Next day, on pressing very firmly from right kidney backwards over hip, a slight "swish" was heard once only. An incision just behind right kidney was made through skin, and this was enlarged with finger, boring down between muscle fibres. When seemingly almost down on to lumbar vertebræ, a little pus escaped. The opening was enlarged, and pus flowed freeely. A long syringe nozzle inserted and directed backwards revealed a huge abscess, situated very deeply, and extending forwards to about middle of right kidney, and backwards to root of tail on right side. Three incisions were made, cutting down on to the nozzle, and at length it was irrigated out, and rubber tubing with many holes was inserted the entire length. He received two more doses streptocine at three-day intervals, and now rapidly improved. The abscess healed very quickly indeed, and the patient commenced eating well.

A liberal diet, and frequent antiseptic irrigation did the rest.

He has now been discharged a month and is in good condition, so this is probably the end of it.

HYDROCYANIC ACID AS AN ANTIDOTE TO CHLOROFORM.

By ARTHUR PAYNE, F.R.C.V.S.,
Weybridge.

The value of Scheele's hydrocyanic acid as an antidote to overdosage of chloroform was first demonstrated by Professor Hobday in a series of observations published in the *Journal of Comparative*

Pathology and Therapeutics (Vol. xi) and the *Lancet* (January, 1898), and has since been confirmed and constantly used by veterinary surgeons in this and other countries ; but the following case, one of a number in which I have had to have recourse to its use, is especially worth recording on account of the length of time which elapsed between the cessation and recommencement of respiration.

The patient to which chloroform was being administered was an old fox-terrier with malignant disease of the testicles, and during the operation the respirations ceased. The tongue was drawn forward, ammonia applied to the nostrils and artificial respiration commenced as quickly as possible ; three minims of Scheele's hydrocyanic acid were given hypodermically. For five minutes there was no response and in desperation I poured four drops of Scheele's acid on the back of the throat, continuing the artificial respiration. Within a few seconds the animal gasped, then gave several deep inspirations and eventually recovered.

AN INTERESTING CASE OF "RED WORM" IN COLTS.

By R. BEATTIE, M.R.C.V.S.
(*Crieff, Perthshire.*)

Subjects.—Clydesdale filly, rising 5 ; and Clydesdale gelding, rising 4.

History.—Neither had ever been yoked, owing to poor condition and the fact that they were "surplus stock" on a hill farm where sheep were the chief thing. They had run out last summer with about 20 other young horses, on old grass which had not been cultivated for many years. They had been on the same pasture in the summer of 1918 also.

Towards October last the above subjects and one other began to get thin and seemed "bad doers." They were taken in and given a liberal feed of oats and hay, and as the third one had already been sold, she was despatched to her new owner. The two above-mentioned were well looked after, and ate well, indeed ravenously, but got thinner and thinner. About Christmas last they were each given a course of worm powders, with negative results. They got poorer in condition, and on January 24 I was asked to go and see them.

I learned the above from the owner, and on enquiry as to any other deaths among young horses, he said that at the end of November, 1918, or thereabouts, a yearling colt showed the same symptoms and gradually faded away and died. A post-mortem had been held, and it revealed "a large tumour in the stomach and was said to be tuberculosis" (the owner's words). It was not cut into, nor were any further details noted.

I visited the farm next day, and found the two above subjects. They were both good animals as regards size and bone, but in very bad condition. The filly was the better of the two, the colt being quite weak and about the stage when poverty merges into emaciation. Both had harsh, staring coats, a general itchiness of the skin, especially around mane and legs, and were most unthrifty looking. Pulse in each case was regular though weak. Temperature of filly was normal, that of colt .5° below. Visible mucous membranes were very pale and of a watery character, with a tinge of yellowness. Both had a jugular pulse, and were in a dull, listless condition. No œdematous swellings of head or sub-maxillary region were found, nor was there any history of any having been seen.

The teeth in both cases were normal. A good feed of oats was given to each and they ate it ravenously. The fæces appeared normal. No worms had been seen at any time.

Diagnosis.—Worms, and with the history of the colt the year before, a grave suspicion of "red worm." Enquiry showed that this condition was unknown in the district (the writer was a new arrival). The case of supposed tuberculosis in the colt the year before was considered unsatisfactory, and was thought to be most likely "worms" encapsuled in the wall of the stomach, either in the adult stage or in course of development (ch, for those notes I lent a fellow student and never got back !)

Prognosis.—Doubtful, especially in case of colt, and in absence of absolute positive symptoms, as presence of the worm.

Primary Treatment.—They were ordered to be housed in warm loose-box, given a liberal feed of oats and hay, with treacle, and a bran mash twice weekly. The owner was instructed to examine carefully all dung passed, to take it out to the sunlight on a shovel and to reflect the light on it and watch carefully. He was told what to look for—"little fellows gorged with blood." Progress in this direction was to be reported. If nothing was found in a day or two I was to start treatment on chance.

Next day he burst into my surgery flourishing a small tin box, containing about a dozen of my little friends, all gorged with blood.

Treatment.—A purgative was considered necessary, and calomel was selected. Each were given ʒiss in a handful of mash at night, and both animals were walked into my loose-box next day. The calomel had very little effect indeed.

Hospital Treatment.—1st day. Each 1½ pints normal saline intravenously in the morning, and in the evening atoxyl grs. v hypodermically and thymol grs. xl. orally, as emulsion.

2nd day :—Each grs. vii atoxyl hypod., gelding 1 pint normal saline intravenously.
3rd ,, Each grs. xl thymol as before.
4th ,, Atoxyl grs. x hypod.
5th ,, Thymol grs. xl as before.
6th ,, Atoxyl grs. xv hypod.

During this time each was having daily 14 lbs. good oats, and 20 lbs. hay, with a bran mash substituted twice weekly for the night feed of oats. Treacle was given as drinks with water, and treacle water was poured over all their hay. Swedish turnips (2) night and morning were also given. They were well groomed and got walking exercise daily. Fresh water was kept before them.

On the 2nd day after the atoxyl injection the colt seemed uneasy and had slight pain. He refused food, was very thirsty, and seemed dull. After the saline injection he was easier, and ate a good feed that night.

From 7th—10th day (inclusive) all medicines were withheld, they being fed as above, well groomed, and exercised. On the latter day, one side of each was washed with a 5% cresol solution, and two days later the other side was done.

On the 11th day, the powders below-mentioned were commenced, and these were continued for 14 days.

Morning Powder.		Night Powder.	
P. Ferri Sulph.	ʒii	P. Ferri Sulph.	ʒii
P. Pot. Antim. Tart.	ʒi	P. Nux. Vom.	ʒi
P. Arsenic Alb.	grs. vi	P. Gentian	ʒiii
P. Foenugrec od	ʒvi	P. Anisi	ʒii
m.f.t. pulv. i		m.f.t. pulv. i	

On 14th and 21st days the grs. vi arsenic were withheld, and grs. xv atoxyl given hypodermically.

They remained under observation for 27 days altogether, and were then taken home. A week later they were then given grs. xv each atoxyl.

Symptoms while under treatment :—

After the 1st day's treatment, " red worms " were numerous in the dung of both, and chiefly on the outside of the ball. Daily they became more numerous, and by the end of the first week many thousands must have been got rid of. At first practically all the worms were alive and gorged with blood, but later about one-fourth of their number were dead and white in colour.

After the 1st week the numbers got less, and several lots of droppings contained none at all. From 14th to 18th day, no worms could

be found, but on the 19th they were again present, though only 4 or 5 in each dropping.

At the time the horses went home, no worms had been seen for three days. The owner informed me that he found an odd worm or two from time to time later on.

As to the animals themselves on arrival in hospital the colt was much the worse of the two. After the first week he improved daily. He got brighter, his pulse got stronger, and the visible membranes began to lose their unhealthy watery condition. He improved much the quicker of the two. Their skins both cleared up slowly, the dry scurfiness gradually disappearing, until when they were sent home they looked well, and were in good condition. On my visit a week later, they were still improving, and since then I saw the filly sold, and she was looking very well. The colt has been broken in, and is working daily, and, to use the owner's words, is "as fat as a butter ball." He has passed no more worms, but whether he is cured or not the writer would not care to say.

P.S. If asked, could the writer pass the colt as "sound" if otherwise all right?

NOTE ON THE EFFECT OF TRAIN JOURNEY DURING THE WINTER MONTHS AND THE TIME ELAPSING BETWEEN DETRAINING AND ACTUAL EMBARKATION ON THE PREVALENCE OF PNEUMONIA ON BOARD SHIP.

DURING the eight months when I was acting as Veterinary Embarkation Officer at the Port of Alexandria, the intimate relationship which exists between a railway journey in cold weather, undertaken immediately prior to embarkation, and the mortality on the sea voyage, has been impressed on my mind.

It is to be granted that there are other factors which also determine the percentage of deaths. One boat may be a much better "horse boat" than another—the ventilation and drainage varies—the weather also has to be considered, and the direction of the prevailing wind; but taking all these factors into consideration, and making allowances accordingly, it is obvious that if horses are shipped immediately, or soon after coming off a long railway journey, a considerable mortality is to be expected.

One does not have to seek far afield for an explanation. The fact that these horses travel for some hours in open trucks, exposed to inclement weather, must reduce the irresistance to the lowest degree. They are placed on board immediately or soon after their arrival at the port under unfavourable conditions, and any organisms of

TABLE ILLUSTRATING THE EFFECT OF A TRAIN JOURNEY AND TIME ELAPSING BETWEEN DETRAINING AND ACTUAL EMBARKATION, ON MORTALITY AMONGST ANIMALS ON BOARD SHIP.

Date	Port of Embarkation.	Transport.	Duration of train journey prior to Embarkation.	Time elapsing between detraining and actual embarkation on Transport.	No. of Animals Embarked.		Number of Animals Disembarked.		Number of Deaths.		Cause of Deaths.	Sent to Veterinary Hospital.
					Horses.	Mules.	Horses.	Mules.	Horses.	Mules.		
8/2/16	Marseilles.	*Surada.*	48 hours.	18 hours.	290	...	289	...	2	...	P.	7-P. and 1-X
8/2/16	,,	*Nitonian.*	33 ,,	42 ,,	398	...	394	...	4	...	2-S.P. and 2-P	27-P. and S.P.
14/2/16	,,	*Maryland.*	50 ,,	50 ,,	612	...	610	...	2	...	1-S.P. and 1-P.	.....
14/2/16	,,	*Missouri.*	50 ,,	16 ,,	533	57	526	57	7	...	5-S.P. and 2-P	15
16/2/16	,,	*Botanist.*	52 ,,	14 ,,	438	...	434	...	4	...	1-P., 1-S.P., 2 Enteritis.	4
18/2/16	,,	*Tintoretto.*	49½ ,,	92 ,,	463	...	463	...	...	...	.....	1
21/2/16	,,	*Karoo.*	50 ,,	144 ,,	228	70	228	70	...	...	.....	.....
22/2/16	Devonport.	*Port Macquare.*	48(Unit A 6(,, B)	nil. ,,	277	...	265	...	12	...	10-S.P., 2-X.,	25
19/2/16	Avonmouth.	*Huanchaco.*	nil.	,,	163	...	158	...	5	...	4-S.P., 1-P.	.....
25/2/16	Devonport.	*City of Edinburgh.*	15(Unit A) 6(,, B)	,, ,,	430	...	428	...	2	...	2-P.	.....
26/2/16	Marseilles.	*Crispin.*	nil.	,,	262	...	246	...	16	...	6-S.P., 10-P.	8
27/2/16	,,	*Minneapolis.*	,,	,,	96	...	95	...	1	...	1-P.	3
1/3/16	Devonport.	*Kabinga.*	13 hours.	,,	544	18	544	18	...	...	.....	8
10/3/16	,,	*Minomine.*	24 ,,	,,	442	230	440	230	2	...	1-P., 1-X.	22-X
11/3/16	Marseilles.	*Knight of the Garter.*	nil.	,,	440	52	406	52	34	...	20-S.P., 10-P. and 4-X.	15
					531	94	518	94	14	...	P-7, E-6, 1-X.	33-P., 3-X.
					213	9	213	9	...	...	.....	4-X.

S.P. = Septic Pneumonia.
P. = Pneumonia.
X = Catarrhal Fever.
E = Purpura.

pneumonia that may be present have an excellent opportunity of making a successful invasion of the tissues. If the animals are rested for two or three days before being placed in this " incubator " they will have regained a large proportion of their resisiing powers, and will be more able to resist infection than if they were placed on board immediately on arrival.

Horses should only be placed on board ships when they are in their best condition, *i.e.*, when their powers of resistance are at their highest. This can be considerably helped by keeping animals which have come off a train journey of many hours duration at the Port of Embarkation until they have regained their normal condition.

A rest of two or three days will enable the Veterinary Officer to evacuate those animals which show a rise in temperature, and are in all probability sickening for either equine influenza or pneumonia—the result of the train journey.

Some of the units which arrived at Alexandria in February, 1915, had clipped all their horses prior to entraining them—knowing that they were destined for Egypt. These unfortunate animals were then trucked without rugs, and brought from the North of Scotland to the South of England—in some cases in a blizzard. They were immediately embarked—the ship soon becomes hot—the air is more or less stagnant, and in a few days pneumonia, usually of a septic variety, appears. The boat is then blamed for being infected with septic pneumonia. In my opinion the infection theory is much exaggerated. A boat will bring a number of animals from, say, Marseilles, that have come off along railway journey. The mortality is high. The boat returns to Marseilles and immediately ships horses from the Remount Depot there. These horses have not undergone a long rail journey. The result is that this boat which has been blamed for being infected with septic pneumonia arrives in Alexandria without having lost an animal. This I have observed time after time. A glance at the attached table—showing the records of fifteen voyages under similar conditions, will help to prove the truth of the preceding remarks.

Translations and Abstracts.

EXPERIMENTS WITH REPEATED DOSES OF OIL OF CHENOPODIUM.*

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THE superiority of oil of chenopodium as an ascaricide to other ascaricidal anthelmintics, when suitable doses of the involved drugs

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are compared, has been experimentally established for the dog by the work of Hall and Foster in the Bureau of Animal Industry, and of Hall in this laboratory, for swine by Hall and Foster (most of the work on swine was done by Foster), and has been clinically established in the case of man by numerous observations of physicians here and in the tropics. In the case of the ascarid of the horse, Hall, Wilson, and Wigdor found chenopodium superior to most of the drugs commonly used, and work by Hall, Smead, and Wolf, to be published in a paper in this series, shows carbon bisulphide superior to chenopodium.

The therapeutic dose of oil of chenopodium for removing ascarids from dogs has been found by the writer to be 0.1 m.p.k. (mil per kilo). In this dosage, experiments on dogs indicate that it is inferior to chloroform in single therapeutic dose of 0.2-0.3 m.p.k. in removing hookworms. In human medicine, it has been found necessary to give chenopodium in repeated doses, usually at hour intervals, in order to remove hookworms, and even under such conditions, several treatments are not infrequently necessary. To determine the method in which chenopodium could be successfully employed against a hookworm in the dog and to secure further data as to the anthelmintic action of this drug, the following experiments were performed:

Chenopodium in Doses Repeated Over a Number of Days.

Dog No. 153, weighing 16 kilos, was given 2 minims of chenopodium in 1 dram of castor oil daily for a total of 12 treatments in 13 days. The dog had distemper and died two days after the last treatment. No worms were passed. There were seven whipworms postmortem. Treatment was therefore 0 per cent. effective against whipworms.

Dog No. 158, weighing 16 kilos, was given the same treatment daily for a total of 17 treatments in 20 days, and killed the day after the last treatment. The dog passed no worms and had six whipworms postmortem. Efficacy against whipworms, 0 per cent.

Dog No. 152, weighing 12 kilos, was given the same treatment daily for a total of 18 treatments in 20 days, and killed three days after the last treatment. The dog passed one hookworm on the twelfth day after beginning treatment. It had 14 *Dipylidium* postmortem. Efficacy against hookworms, 100 per cent.; against *Dipylidium*, 0 per cent.

Dog No. 154, weighing 15 kilos, was given the same treatment for a total of 18 treatments in 20 days, and killed three days after the last treatment. Through the eight days after the first treatment, the dog passed a total of eight hookworms and none thereafter. Postmortem it had seven hookworms and 41 *Dipylidium*. Efficacy against hookworms, 52 per cent.; against *Dipylidium*, 0 per cent. It is remarkable that over half of the hookworms should yield to

seven treatments and the remainder resist a total of 18 treatments, but this is in keeping with the difficulties and uncertainties of hookworm treatments as shown in numerous other experiments.

Dog No. 155, weighing 9.5 kilos, was given the same treatment for a total of 18 treatments in 20 days, and was killed three days later. In the first three days after the first treatment, the dog passed two hookworms and one was found in the large intestine postmortem. The dog had two other hookworms, 19 whipworms, and three *Dipylidium* postmortem. Efficacy against hookworms, 60 per cent.; against whipworms and *Dipylidium*, 0 per cent. This shows the same peculiarities as regards the resistance of individual hookworms to treatment.

Dog No. 156, weighing 9 kilos, was given the same treatment for a total of 18 treatments in 20 days, and killed three days later. The second day after the first treatment, the dog passed one ascarid. No worms were found postmortem. Efficacy against ascarids, 100 per cent.

Dog No. 157, weighing 12 kilos, was given the same treatment for a total of 19 treatments in 23 days, and killed one day later. The ninth day after the first treatment, the dog passed one whipworm. The dog had 16 whipworms postmortem. Efficacy against whipworms, 6 per cent.

Dog No. 159, weighing 14 kilos, was given the same treatment for a total of 19 treatments in 23 days, and killed one day later. The dog passed no worms and had one *Dipylidium* postmortem. Efficacy against *Dipylidium*, 0 per cent. The preliminary fecal examination of this dog showed fluke eggs; no flukes were detected in the daily examination of the feces or postmortem. However, these flukes, a species of *Alaria* (*Hemistomum*), are very small, not difficult to detect postmortem, but likely to be destroyed in feces and unrecognisable, and it is likely that the treatment removed them.

Dog No. 162, weighing 12.75 kilos, was given five minims of oil of chenopodium in the soft, or soluble, elastic capsule, followed immediately by two drams of castor oil, daily, for a total of 12 doses in 13 days, and was killed five days later. The second day after the first treatment, the dog passed one whipworm. It had two *Dipylidium* postmortem. Efficacy against whipworms, 100 per cent.; against *Dipylidium*, 0 per cent.

Dog No. 163, weighing 15 kilos, was given the same treatment for a total of 12 treatments in 13 days, and was killed five days later. The third day after the first treatment, the dog passed one hookworm, and one *Dipylidium* was found in the cecum postmortem. There were 97 other *Dipylidium* postmortem. Efficacy against hookworms, 100 per cent.; against *Dipylidium*, 1 per cent.

Dog No. 164, weighing 15 kilos, was given the same treatment for a total of 12 treatments in 13 days, and was killed five days later. The second day after the first treatment, the dog passed one hookworm. It had three *Dipylidium* postmortem. Efficacy against hookworms, 100 per cent. ; against *Dipylidium*, 0 per cent.

Dog No. 165, weighing 14.5 kilos, was given the same treatment for a total of 12 treatments in 13 days, and was killed five days later. The fifth day after the first treatment, the dog passed one whipworm. It had seven whipworms and five *Dipylidium* post-mortem. Efficacy against whipworm, 13 per cent. ; against *Dipylidium*, 0 per cent.

Dog No. 166, weighing 12 kilos, was given the same treatment for a total of 12 treatments in 13 days, and was killed two days later. In the five days after the first treatment, the dog passed 29 ascarids, and in the three days after the first treatment, passed 24 *Dypylidium*. It had one whipworm postmortem. Efficacy against ascarids and *Dipylidium*, 100 per cent. ; against whipworms, 0 per cent.

Dog No. 167, weighing 14.5 kilos, was given 12 treatments in 13 days, and was killed two days later. In the two days after the first treatment, it passed two ascarids, and in the 11 days after the first treatment, it passed 54 whipworms. It had 12 whipworms and one *Dipylidium* postmortem. Efficacy against ascarids, 100 per cent. ; against whipworms, 82 per cent. ; against *Dipylidium*, 0 per cent. Owing to an accident while collecting worms postmortem, some whipworms may have been lost, but the efficacy was about 75 per cent. or more.

Dog 168, weighing 11.5 kilos, was given the same treatment for a total of 12 treatments in 13 days, and was killed two days later. The day after the first treatment, the dog passed two ascarids, and the tenth day after the first treatment it passed three whipworms. It had no worms postmortem. Efficacy against ascarids and whipworms, 100 per cent.

Dog No. 169, weighing 12 kilos, was given the same treatment for a total of 12 treatments in 13 days, and was killed two days later. The day after the first treatment, the dog passed two ascarids. It had one *Dipylidium* postmortem. Efficacy against ascarids, 100 per cent. ; against *Dipylidium*, 0 per cent.

Dog No. 283, weighing 11.5 kilos, was given five minims of oil of chenopodium in soft (soluble elastic) gelatine capsules, followed by 15 mils of castor oil. Treatment was repeated on the third, fifth, and seventh day thereafter. The dog was found dead three days after the last treatment. In the eight days following the first treatment, the dog passed three hookworms. It had 11 hookworms postmortem. Efficacy against hookworms, 21 per cent.

Dog No. 228, weighing 8 kilos, was given chenopodium at the rate of 0.05 m.p.k., with 30 mils of castor oil. The next day the dose was repeated and the dog was killed six days after the second treatment. On the day following the second treatment, the dog passed five hookworms, and in the four days following the first treatment, it passed 31 whipworms. It had 16 hookworms, 175 whipworms, and two *Dipylidium* postmortem. Efficacy against hookworms, 24 per cent.; against whipworms, 15 per cent.; against *Dipylidium*, 0 per cent.

Chenopodium in Doses Repeated During One Day.

(Of the following seven experiments, the four with dogs 293, 294, 299 and 309 have already been published in another paper. They are repeated here for the sake of completion.)

Dog No. 293, weighing 12 kilos, was given one 10-minim soft gelatine capsule of chenopodium every hour for a total of three doses, and the last dose was followed an hour later by 15 grams of Epsom salts in simple syrup. During the next two days the dog passed four hookworms, and was killed the fourth day after treatment. It had no worms postmortem. Efficacy against hookworms, 100 per cent.

Dog No. 294, weighing 16 kilos, was given a 10-minim capsule of oil of chenopodium with $\frac{1}{3}$ grain of cascarin; this was followed an hour later by a 10-minim capsule of chenopodium and another $\frac{1}{3}$ grain of cascarin. In the next four days the dog passed three hookworms and one whipworm. It had one hookworm, 21 whipworms, and six *Tænia pisiformis* postmortem. Efficacy against hookworms, 75 per cent.; against whipworms, 5 per cent.; against tapeworms, 0 per cent.

Dog No. 299, weighing 15 kilos, was given one 10-minim soft capsule of chenopodium every hour for a total of three doses, and was fed uncooked meat immediately after each dose to see if it afforded protection against the drug in the absence of purgation and also diminished the efficacy. The day after treatment, the dog passed five ascarids and three hookworms. It was killed the fourth day. It had five hookworms. Efficacy against ascarids, 100 per cent.; against hookworms, 37.5 per cent.

Dog No. 314, weighing 6 kilos, was given one 10-minim soft capsule of chenopodium at 8.30 a.m., and immediately fed some uncooked beef heart and bread. At 2.0 p.m. the dog was given a second 10-minim capsule and offered food, but refused it. At 4.35 it was given a third capsule and food. At 9.0 a.m. the next day the dog was given 30 mils of castor oil. This was an attempt to determine the effects in the administration of a capsule before each meal, advocated by some physicians in human cases of hookworm. The dog passed two ascarids the day after treatment, and was killed the fourth day. It had no worms postmortem. Efficacy against ascarids, 100 per cent.

Dog No. 309, weighing 14 kilos, was given one 10-minim soft capsule every half hour for a total of three doses, the last dose being followed a half hour later by 30 mils of castor oil. At an undetermined interval after getting the castor oil, the dog broke out of its cage and ate some food. No worms were passed. The dog was killed the fifth day. It had two hookworms and six whipworms. Efficacy against hookworms and whipworms, 0 per cent.

Dog No. 148, weighing 13 kilos, was given one 10-minim soft capsule of chenopodium every hour for a total of three doses, the last dose being followed immediately by 30 mils of castor oil. The dog passed no worms and was killed the fourth day. It had six whipworms. Efficacy against whipworms, 0 per cent.

Dog No. 151, weighing 13 kilos, was given one 5-minim soft capsule of chenopodium every hour for a total of three doses, the last dose being followed immediately by 30 mils of castor oil. The dog passed one hookworm the day after treatment, and two whipworms the third or fourth day after treatment. The animal was killed the fourth day. It had one whipworm postmortem. Efficacy against hookworms, 100 per cent. ; against whipworms, 67 per cent.

Where very small doses of chenopodium, two minims, were given daily for a total of 12 (one case), 17 (one case), 18 (four cases), and 19 (two cases) treatments, the efficacy against ascarids was, as usual, 100 per cent. ; against hookworms, 100, 60, 53, and 0 per cent. ; against whipworms, 6, 0, 0, 0, and 0, per cent. ; against *Dipylidium*, 0 per cent. (five times). These experiments confirm the idea that chenopodium is successful against ascarids almost always, that repeated doses increase its efficacy against hookworms, and that it should not be regarded as a tæniacide. They also bear out the writer's suggestion that santonin is the remedy of choice for whipworms, as even these numerous treatments with small doses of chenopodium fail to remove these worms in most cases.

Where larger doses of chenopodium, five minims, are given daily for 12 doses, the drug shows the expected efficacy against ascarids, 100 per cent. (4 cases) ; an efficacy against hookworms of 100 per cent. (two cases) ; against whipworms, 100 (two cases), 75 to 82, 13 and 0 per cent. ; and against tapeworms, 100, 1 and 0 (five cases) per cent. The efficacy against tapeworms is to be expected, the base of 100 per cent. efficiency against tapeworms is an accident, out of keeping with numerous failures on the part of this drug to remove any tapeworms whatever ; the whipworm findings indicate that repeated doses of five minims daily are much more effective than two minims daily ; the findings for hookworm are based in both cases on a single hookworm and so are inconclusive.

A test of this same 5-minim dose every other day for four days showed 21 per cent. efficacy against hookworms.

A test of half the therapeutic dose (0.1 m.p.k.), or 0.5 m.p.k., given on two successive days, showed 24 per cent. efficacy against hookworms, 15 per cent. against whipworms, and 0 per cent. against *Dipylidium.*

In the repeated doses given in one day, three 10-minim doses at hour intervals, followed by Epsom salts, were 100 per cent. effective against hookworm, and 67 and 0 per cent. effective against whipworms ; the same dose, given with cascarin, was 75 per cent. effective against hookworms, 5 per cent. effective against whipworms, and 0 per cent. effective against tapeworms ; the same dose with meat, but without purgation, was 100 per cent. effective against ascarids and 37.5 per cent. effective against hookworms ; the same dose, given three times during the day with food, was 100 per cent. effective against ascarids ; the same dose, given every half hour and followed a half hour later by castor oil, was 0 per cent. effective against hookworms.,

The foregoing suggests that chenopodium in repeated doses of five minims daily for 12 doses is rather efficacious against ascarids, whipworms, and, probably, hookworms. But such prolonged treatment is objectionable from the standpoint of the practitioner. The use of three 10-minim doses at hour intervals, followed by a purgative an hour later, gives promise of success in treating dogs as in treating man for hookworms, but, even as in that case, repeated treatments will not infrequently be necessary. This subject demands more data. Prolonged experience to date only enables us to formulate the following statements with regard to oil of chenopodium :

Oil of chenopodium has no equal as a drug for the removal c ascarids, as it will in the big majority of cases remove 100 per cent. of the worms present in the dog, and is apparently about as effective, under proper conditions of administration, against ascarids of man and swine. It is apparently as effective as anything against ascarids in the horse and will probably give satisfactory results when it has been sufficiently studied to ascertain the proper dose and mode of administration.

Chenopodium does not have, in our experience, as much value for removing hookworms in single therapeutic dose as does chloroform, but such experimental evidence as we have, together with the clinical evidence of thousands of human cases treated with chenopodium, indicates that in repeated doses, either at hour intervals or on consecutive days, it should prove reasonably satisfactory against hookworms in dogs.

No drug can be depended on to remove whipworms when given in single dose, as the writer has stated elsewhere. Repeated doses of oil of chenopodium, five minims daily for 12 days, for instance, seem to give rather good results and warrant further investigations along this line. But the fact that santonin is not a gastro-intestinal irritant gives it the choice for use against whipworms, so far as we are aware at present. It can be given in doses of a half-grain or a grain daily, with equal amounts of calomel, and seems entirely safe when so used, so far as our experiments show.

Chenopodium will occasionally remove tapeworms, but the numerous failures to remove any in a long series of experiments show positively that it cannot be regarded as a suitable anthelmintic for the removal of tapeworms, so far as dog tapeworms are concerned, and so far as findings in regard to them can be applied to other tapeworms and hosts.

EPIZOOTIC ABORTION ORDER OF 1920.

COUNTY OF LANARK.

EPIZOOTIC ABORTION is a highly contagious disease, caused by the *Bacillus Abortus* (Bang.). The chief predilection habitat of the bacillus is the womb of the pregnant animal, where it sets up a specific inflammatory or catarrhal condition that usually leads to the premature expulsion of the calf, and very often before a viable age has been reached. The foetus, the membranes, and discharge are highly infective, and the post-birth discharge is virulent for some time, but Sir Stewart Stockman says that many cattle get rid of all infective material from the genital organs in two or three months.

When one or two cases of premature calving have occurred in a herd, hitherto free from abortion, a simple blood test can determine whether or not the cause is specific—*i.e.*, whether it is a case of Contagious Abortion, or of accidental abortion only. If several cases in a herd occur within a short time, the existence of Contagious Abortion may be considered as certain without any blood test.

No case of Contagious Abortion can possibly occur without direct or indirect contact with an antecedent case. Natural infection occurs either by the mouth or the genital tract. Though infection by the alimentary tract is most common by far, there is little doubt that a bull may be a mechanical carrier, or, being infected in the testes, will eject bacilli with his semen. Infection *via* the genital tract, apart from the agency of the bull, used to be considered very general, but is now held to be negligible. It has been estimated that twenty per cent. of the herds in this country are affected with the disease,

but no accurate estimate of its prevalence could be made without the aid of a compulsory Notification Order, for it is notorious that its existence in many herds is kept secret.

Of all the unscheduled contagious diseases of bovines—excepting Tuberculosis, the Order in connection with which is meantime in suspension—Epizootic Abortion is the one that prevails most generally in Great Britain. The opinion expressed by many people, on first thought, that the disease is one which is clearly marked out for control by means of a comprehensive Order is not an unnatural one. Indeed, many stock-owners, as well as many veterinarians—without, perhaps, giving the subject the consideration it deserves—still hold the view that the absence of an Order designed to exercise complete control over a scourge so baneful to the breeding and dairying industries is quite unjustifiable. Such a view was fostered in the mind of many people, and perhaps owed its inception in some cases to the second report of the Departmental Committee on Epizootic Abortion, of date June, 1910, which recommended that, as a preliminary measure, the disease in cattle should be dealt with under an Order of the Board of Agriculture and Fisheries, requiring :—

(*a*) Compulsory notification of suspected cases of the disease ;

(*b*) Veterinary inquiry to establish the existence of disease on any particular premises ; and

(*c*) Temporary isolation and restrictions on the movement of any cow that has recently aborted.

However, since the issue of that report, responsible opinion has travelled a considerable way.

Additional weight was given to the claim of the stockowner for a comprehensive Order by the unfortunate recommendation of the Travelling Commission of Enquiry into the Cost of Production of Milk, contained in their report published last spring. When sitting at Exeter, the Commission was informed of the operation in Devonshire of the Devonshire Epizootic Abortion Order of 1916, and they advised that the measures adopted against the disease in Devon should be extended to the rest of the country, without assigning any cogent reason.

Whether the operation of the Devonshire Order has produced any good results is a matter of grave doubt, and, indeed, it has been asserted that, while its administration has involved very considerable expense, and has been a source of irritation to local farmers, no appreciable benefits have accrued. Further, it is reasonable to suppose that, if the Order in question has achieved the objects for which it was designed, the Ministry of Agriculture would not have been slow to make a General Order applicable to the whole country, or at least

to have recommended Local Authorities to consider the advisability of applying for an Order of similar effect.

What considerations then have prompted the issue of the Epizootic Abortion Order of 1920, and what results are Local Authorities likely to attain in controlling the disease by making regulations under it ?

The Order, as will be observed on a careful reading of it, is of a very restrictive character, and one may be excused from regarding it as a slight concession by the Ministry of Agriculture and Fisheries to appease an importunate public clamouring for compulsory power for the control of the disease. The order confines itself to :—

(*i*) prohibiting the exposure by any person in any market, fair-ground, or saleyard within the district of the Local Authority of a cow or a heifer which, to his knowledge, or according to information furnished to him, has calved prematurely within the two months immediately preceding such exposure ; and

(*ii*) prohibiting the sale by any person, within the district of the Local Authority, of a cow or heifer which, to his knowledge or according to information furnished to him, has calved prematurely within two months immediately preceding such sale, unless, before the sale, he shall have given to the purchaser notice in writing of such premature calving.

The words " has calved prematurely " are very significant and materially simplify the definition of an animal amenable to the Order. Animals that are known to have calved prematurely, whether the cause be specific or accidental, are amenable. To have limited it to aborting animals—the subject of Epizootic Abortion—would have caused endless worry and expense in the matter of proof. On the other hand the inclusion within the scope of the Order of animals that have aborted, whether the cause may have been specific or otherwise, is well advised, as a cow that has aborted from accident, though free from the specific disease, is rarely worth the money the unprincipled seller gets for it.

Regulations made under the Order, if strictly enforced, should have the effect of compelling individuals who hitherto have not scrupled to sell as correct, animals that were highly infective and incidentally destined to a short period of lactation, to mend their ways. Further, the prohibition of the public exposure for sale of such animals will operate to prevent the spread of the disease to free herds, to emphasise publicly its infectious character, and give confidence to purchasers at public marts.

There is no obligation on the owner of infected animals to notify the existence of disease in his herd. Indeed, he may sell privately,

within two months after the Act, a cow that has calved prematurely through being the subject of Epizootic Abortion, provided that, prior to the sale, he notifies the fact in writing to the intending purchaser.

The Order is good so far as it goes, but it cannot be expected to influence materially the spread of Contagious Abortion.

It is worthy of note that this very simple Order does not seek to control such a dangerous animal as the cow that is about to abort, and it is notorious that some owners of infected herds in which abortions occur about or after the eighth month of gestation do not hesitate to hasten to the market and sell without remark the animal that exhibits the symptoms of impending abortion, and many such have an appearance of milk equivalent to that of a cow that has gone her full time. The purchaser may be able to prove when the cow is delivered of her calf at his place that abortion has occurred and get the cow returned, but in the meantime his premises may have been fouled and an outbreak of abortion may result.

Any Order which had for its object the effective control of this disease would require to provide for compulsory notification and veterinary inquiry, and if this proved positive a prolonged period of inspection, quarantining and repeated disinfection of infective cows and premises, cessation of movement of animals for a considerable time, and the eradication of the disease would seem to be impossible without the slaughter of every cow that has oborted.

When one is aware of the wide extent of the sources of infection, the effect on the dairying industry of the country of an Order containing provisions of the nature indicated could only be regarded with the most serious apprehension.

Even if an Order—bereft of its article providing for the slaughter of infective and potentially infective animals, but more comprehensive than the Epizootic Abortion Order of 1920—were enforced, the existence of the disease would still continue. Moreover, its articles on notification, veterinary inquiry, restriction of movement, etc., would provide many problems that at the present time seem insurmountable, since the attempt to solve them would paralyse milk production. For example, consider the effect of a restriction notice served on the owner of a large number of back-calving cows at grass if abortion began, as it very often does, and the owner had no premises in which to tie up and milk the cows that were slipping their calves day by day.

If it be conceded then that these objections, which are by no means exhaustive, are sufficient to rob us of the desire for such an Order, it may be urged that this new Order might, with good reason, have included at least compulsory notification of disease. That, however,

would not help matters much, and, as failure to notify would constitute an offence, it might, as is alleged in Devon, have the effect of keeping stock-owners from applying for vaccine treatment.

It has been suggested that compulsory vaccination should be linked to compulsory notification, and that the list of infected farms, etc., should be published by Local Authorities. Such measures would probably materially reduce the havoc caused by the disease, but power has never yet been granted in this country to inoculate any animal with serum or vaccine or Tuberculin or Mallein without the full consent of the owner. Further, mere notification of the disease would in itself effect little or no good.

It is becoming more evident that stock-owners, who fear the disease most, understand fairly well how to protect their herds. Every farmer should read the "Leaflet No. 108" on Epizootic Abortion, issued by the Ministry of Agriculture and Fisheries, and act on the advice given therein. Perhaps, however, it may not be out of place here to set down a few precautions that owners of herds free from abortion disease would do well to observe :—

1. Contact of the herd with strange animals should not be allowed.
2. Refuse the use of the bull to strange cows, and don't mate cows with a strange bull. If special circumstances create an exception, apply measures of disinfection to the bull.
3. Isolate and prove every bought-in dairy cow, and if a newly-born calf is bought it should also be isolated, and its dejecta disinfected for a period of ten days.
4. Be careful of grazing pregnant cows on common pasture where they may be exposed to infection.
5. Avoid soiling of fodder by strange persons or dogs or other animals coming about the premises.
6. If any cow calves prematurely or shows signs of impending abortion, isolate her at once and call in a veterinary surgeon to treat her, adopt measures of disinfection, and take a sample of blood to test the nature of the case.
7. The vaccine, "Anti-Abortion A," should not be used as a preventive in a clean herd.

The Epizootic Abortion Order of 1920 will, if taken advantage of by Local Authorities generally, help a little to limit the spread of the disease, but past experience and the present position of matters suggest that it would be unwise to extend its scope in the near future.

Despite certain accidental drawbacks (only occasionally met with) to the use of vaccine for the prevention and control of Contagious

Abortion, the experience gained in Lanarkshire in upwards of one hundred outbreaks and the statistics of others who have also used it extensively in conjunction with efficient measures of disinfection, serve to show that the vaccine, "Anti-Abortion A," prepared by Sir Stewart Stockman at the laboratory of the Ministry of Agriculture and Fisheries, is a most efficient agent in combating an outbreak of the disease. The vaccine is supplied on demand at a cost that is only sufficient to defray the expense of carriage. Measures should be adopted to extend the use of vaccine in infected cow-sheds, and an endeavour should be made to educate stock-owners further regarding the nature of the disease.

HUGH BEGG,
F.R.C.V.S

County Offices, Hamilton,
March, 1920.

A BILL TO AMEND THE ACTS RELATING TO THE PRACTICE OF VETERINARY SURGERY AND MEDICINE.

Whereas it is desirable to provide further funds for the Royal College of Veterinary Surgeons to enable it to conduct examinations, prosecutions and inquiries authorised by statute, and generally to carry out such other objects or duties as may be considered beneficial to the veterinary profession and necessary for the promotion of the art and science of veterinary medicine and surgery:

And whereas doubts have arisen whether persons registered as existing practitioners under section fifteen of the Veterinary Surgeons Act, 1881, are subject to the jurisdiction of the Royal College of Veterinary Surgeons as conferred on them by that Act in respect of persons on the Register of Veterinary Surgeons:

And whereas it is desirable that persons registered as existing practioners shall be entitled to style themselves veterinary surgeons:

And whereas the profession of veterinary surgeons is not protected from unqualified persons practising as such under the cover of registration under the Joint Stock Companies Acts:

Be it therefore enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this Parliament assembled, and by the authority of the same as follows:—

1.—This Act shall be supplemental to and read with the Veterinary Surgeons Act, 1881 (hereinafter called the principal Act), and the

Veterinary Surgeons Amendment Act, 1900, and may be cited as the Veterinary Act (1881) Amendment Act, 1920, and shall come into operation on the first day of October one thousand nine hundred and twenty.

2.—(1) An annual fee of one guinea shall be payable on the first day of April in each year or on such other date as the council of the Royal College of Veterinary Surgeons may from time to time determine, by every member of the Royal College of Veterinary Surgeons, save as excepted in sub-section (4) hereof, such fee to be paid to the registrar of the Royal College of Veterinary Surgeons on or before the thirtieth day of April, or such other day as the said council may from time to time determine, in each year. On receipt of such fee the registrar shall cause to be posted to the member paying the same a copy of the Register of Veterinary Surgeons free of all cost.

(2) If the annual fee of any member shall not have been paid on or before the thirtieth day of April (or such other day as the said council may from time to time determine) in any year, the registrar shall send to such member by registered post at the address given in the Register of Veterinary Surgeons for the time being, or to any other address of which written notice shall have been given by such member to the registrar, a notice requiring payment, and if such payment shall not be made within one month from posing such notice a final notice shall be sent to such member by registered post.

(3) If any member of the Royal College of Veterinary Surgeons shall not have paid such annual fee for the time being within one month from the posting of the final notice mentioned in the last preceding subsection, thereupon such unpaid fee shall become and be a debt due and payable to the Royal College of Veterinary Surgeons at the then existing head office of the college, and if the member so making default be ordinarily resident or domiciled in England or Wales may be sued for and recovered in the county court having jurisdiction over the district in which the said office may for the time being be situate, and if the member so making default be ordinarily resident or domiciled in Scotland such debt may be sued for and recovered in the sheriff court of the sheriffdom of the Lothians and Peebles at Edinburgh, and if the member so making default be ordinarily resident or domiciled in Ireland such debt may be sued for and recovered in the Civil Bill Court in Dublin : Provided always that the council shall have power to withhold such proceedings for the recovery of the said fee in cases in which in the opinion of the council the member is unable to pay. In any such proceedings a certificate purporting to be under the hand of the secretary of the

college setting forth that a member's subscription is due and unpaid shall be prima facie evidence thereof and of a member's default in payment.

(4) This section shall not apply to members of the Royal College of Veterinary Surgeons who do not practise in the United Kingdom or to holders of the veterinary certificate of the Highland and Agricultural Society who have been or may hereafter be admitted as members of the Royal College of Veterinary Surgeons in conformity with clauses one and two of the supplemental charter of 1879 granted to the Royal College of Veterinary Surgeons, or to existing practitioners as defined in section fifteen of the principal Act.

(5) The council of the Royal College of Veterinary Surgeons shall forthwith prepare and pass byelaws for the disposition of the money from time to time received in respect of the annual fee, and shall have power from time to time to add to, vary, and alter the same (such byelaws, additions, variations, and alterations to be made and carried out subject to the conditions prescribed in the charter of the college dated eighth March eighteen hundred and forty-four) : Provided always, that such byelaws and any alterations thereto shall have no force or validity until the same shall have been submitted to, and approved by, the Privy Council.

3.—From and after the commencement of this Act all persons duly registered as existing practitioners, in accordance with section fifteen of the principal Act, and whose names are on the register kept for that purpose, shall be entitled to style themselves veterinary surgeons, and shall be subject to the jurisdiction of the Royal College of Veterinary Surgeons in all respects and in like manner as if they were members of the Royal College of Veterinary Surgeons, and shall be liable in like manner to have their manes removed from the register of existing practitioners by the council of the said college, and shall in like manner be bound by any byelaws already made, and which may hereafter be duly made defining what amounts to conduct disgraceful in a professional respect within the meaning of section six of the principal Act.

4.—Anything which would be an offence under the Veterinary Surgeons Act if committed by an individual shall be an offence if committed by a company registered under the Companies Acts.

Reviews.

AMERICAN JOURNAL OF VETERINARY MEDICINE, MARCH, 1920. Published monthly at 9, South Clinton Street, Chicago, U.S.A. Price, Canadian and Foreign, 4 dollars a year.

This up-to-date periodical is full of interesting matter. A short review of "The Present Status of the Live Stock Industry of the United States," by H. R. Smith, Chicago Live Stock Commissioner, shows that increased land cultivation has caused a reduction of 30 per cent. in the total number of beef cattle, and prices have risen 55 per cent. There were 75,587,000 hogs in the country at January 1st, 1919, and 25 per cent. of these were exported as pork to other countries. The greatest handicap to getting surplus pork to Europe is the high rate of exchange. Sheep raising is increasing, and about 3,000,000 more were available in 1919 as compared with 1918. The dairy industry improved considerably, and the demand for heavy horses was very satisfactory. The prevention and eradication of disease among live stock is receiving very earnest and well-organised attention. The "Queries and Answers" section of the journal is a well-used and very valuable one to the general practitioner. Any veterinary surgeon who is doubtful about a puzzling case, or thinks he might have done differently or better with an ordinary one, writes to the journal and gets an answer from the cattle, swine, or horse expert on the staff. Cases are also reported for their scientific value and for criticism. In the Cattle Section, "Chronic Endometritis" is comprehensively discussed, and in the Swine Section "Diseases Causing Loss of Suckling Pigs." "Matters of Current Interest" comprise Society Meetings and *Personalia*. An Army Bill is shortly to come before Congress, and it is expected that the legislative committee of the A.V.M.A. will be able to secure a satisfactory reorganisation and reconstruction of the Veterinary Corps. One marked feature of the journal is the large amount of advertising matter in it. From a financial point of view this must be very satisfactory, and although it does not quite harmonise with our professional ideas over here, yet it is gratifying to see how well supported materially the publishers are by workers in the fields of science and commerce.

G.M.

ANKYLOSTOMIASIS IN DOGS IN SIERRA LEONE. By Warrington Yorke and B. Blacklock.

"The Annals of Tropical Medicine and Parasitology," July 31, 1915, contains an interesting article on the above subject. Two parasites were found, ankylostoma carninum and ankylostoma ceylanicum, distinguished the one from the other by the characteristic arrangement of their teeth. The discovery of A. ceylanicum in the dog in Sierra Leone is of interest. It has been found in a civet cat from Colombo, in a dog and cat in Bengal and also in a lion from the Calcutta Zoological Garden, and has occasionally been found in human beings. Ankylostoma ceylanicum is the bigger of the two parasites. Infection

with ankylostominæ of human beings is common in Sierra Leone, and investigation as to whether A. ceylanicum occurs in human beings is important in view of the dog reservoir of infection. Prophylactic measures must include the dog in their purview. G. M.

VETERINARY MEDICINE, No. 13. Edited by D. M. CAMPBELL, D.V.S. RABBIT AND CAT DISEASES. By CHARLES GREATLEY SAUNDERS, V.S., B.V.Sc., D.S.O. Published by American Veterinary Publishing Co., Chicago: 1920. Price 2 dollars.

The usefulness of this little book is beyond question. The ailments of cats are as important to the veterinarian as the maladie of dogss, and much money has been laid out by fanciers and smallholders in rabbits.

The section on the rabbit is more complete than the one on the cat and comprises 8 chapters dealing with the rabbit in health, diseases of the digestive tract and skin, coccidiosis, infectious diseases, obstetrics, septicæmia and miscellaneous diseases and wounds. Some of the remedies prescribed for complaints strike us as not being free from danger, *e.g.*, filling up the auditory canal with nitrate of mercury ointment and olive oil in psoroptic and symbiotic mange and applying bichloride of mercury 1 in 500 for ringworm. We think less dangerous and quite as effective remedies might be used.

Something might have been said about the method of administration of medicine to rabbits. Both in rabbits and cats we have found that using glycerine as a base for the administration of other remedies is useful. The writer advises nauseous drugs to be given in pill or capsule form to the cat and also to introduce the index finger of the left hand into the corner of the lips in large cats. We have never managed to perform either of these feats in our feline subjects, because we have seldom been able to gain the confidence of the patient. In catarrh and bronchitis, which have been the chief ailments our own cats have suffered from, and which are not mentioned in the book, we have obtained excellent results by giving glyco-heroin in the milk. We miss any mention of our old friend " chylous ascites " in the cat in this book. It was the only cat complaint we ever heard mentioned when at college. On page 97 it is recommended to give 85 *grains* of santonin for tape worm. Surely this is a mistake.

The author has some useful remarks on the psychology of the cat and he attributes the well-known obstinate refusal of the cat to eat (the hunger-striker of the animal world) to nostalgia or in plain terms, " home-sickness." This accounts in some cases for the idiosyncrasy, but we are not satisfied that it is the full explanation. We think that there is the obstinate pride and true feminine way of expressing defiance or suspicion of all human good intentions strongly inherent in the cat.

It is very gratifying to know that a book has been published by a veterinarian on the diseases of the rabbit and cat. One of our number has at any rate appreciated the duty of the profession in the matter. If more of us could get the broad outlook and remember that we claim all the animal world and even birds and fish as our patients, our science would benefit and ignorance and quackery recede more into the background. G. M.

ANNUAL REPORT ON THE CIVIL VETERINARY DEPARTMENT, UNITED PROVINCES, FOR THE YEAR ENDING MARCH 31, 1919. Price 9d. Government Press, Allahabad.

MAJOR E. W. OLIVER, M.R.C.V.S., F.Z.S., Superintendent of the Department, sends us this report. Despite shortage of staff and epidemics of influenza, much good work has been done in the prevention and cure of animal disease. An experienced manager of the farms has been appointed and cattle and sheep breeding have been given a fillip thereby. The horse and pony stallions have been increased in number to 72. Although there has been a shortage of men owing to their absence on military duty, an increase has taken place in the number of hospitals and dispensaries maintained. Rinderpest, hæmorrhagic septicæmia, and foot and mouth disease caused the most trouble. During the year 35,320 cases of contagious disease were notified, 14,570 villages were visited by the travelling veterinary assistants, and 24,687 animals treated other than those reported on, and 316 animals were castrated. These figures give some idea of the valuable work compassed by the Veterinary Department.

G. M.

Personal.

Brigadier-General T. G. Peacocke, C.I.E., M.R.C.V.S., has recently been appointed Director-General of the Army Remount Department of India. This distinguished officer did very valuable work on the Remount Commission in Australia during the war, and is attached to the Indian Army. It is a great honour to our profession that one of its members should have been chosen to fill such a responsible position, especially in a country where horse breeding is carried on to a point of excellence unequalled in any other part of the world.

NOTICES.

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